**First Semester 2022-2023**  
**COMPREHENSIVE EXAMINATION**

**Course No.** : CS ZG530**/ DS MV543**  
**Course Title** : Data Science  
**Nature of Exam** : Closed Book  
**Weightage** : 40%  
**Duration** : 2½ Hours  
**Date of Exam** : Sunday, 27/11/2022 (FN)  
**No. of Pages** = 2  
**No. of Questions** = 3

**Q.1 Answer the following questions related to Data Science Fundamentals:**  
(a) What are the key differences between structured and unstructured data?  
(b) Explain the significance of data cleaning in analytics. Provide techniques.  
(c) Discuss the importance of feature engineering in predictive modeling.  
(d) What is the role of big data technologies in data science?  
(e) Explain how deep learning is applied in image recognition.  
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**Q.2 Answer the following questions on Advanced Data Science Techniques:**  
(a) Discuss the challenges of deploying machine learning models in production.  
(b) What is transfer learning? How does it benefit model training?  
(c) Explain the use of anomaly detection in fraud detection systems.  
(d) How does reinforcement learning differ from supervised learning?  
(e) Describe how data visualization improves decision-making in businesses.  
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**Q.3 State True or False providing due justification for your answers:**  
(a) Data augmentation is only useful in text-based models.  
(b) Time-series forecasting models do not require feature selection.  
(c) Overfitting is always a sign of a good model.  
(d) Data normalization improves model accuracy.  
(e) Neural networks require labeled data for training.  
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